# Risk, Responsibility, and Performance Matrix (RRPM) – Recognizing and Assigning Risks and Responsibilities

# What is "Risk" in ESPC Context?

- **To ESCO – chance that guarantee will not be met and shortfall will be identified**
  - Will have to pay agency the difference
- **To agency – chance that savings you are paying for are not fully realized**
  - i.e., savings might not exceed payments

# What's in an ESPC guarantee?

- A specified level of cost savings (one total dollar amount)
- Specified equipment performance (and standards of performance such as temp. and lighting levels)

# What *exactly* is guaranteed depends on:

- Who takes risk/responsibility for what in T.O.
- The M&V plan – how savings will be determined

# What is the Risk, Responsibility, and Performance Matrix (RRPM)?

- **A summary of key contract elements related to risks and/or responsibilities**
  - Each can be assigned to the ESCO, the agency, or shared
- **Required element of the contract (Attach. J-7)**
- **Risk/responsibility elements broken into three categories:**
  - Financial (usually mixed allocation)
  - Operational (usually agency)
  - Performance (ESCO)

# Purpose of RRPM

- **Education about risks**
  - How contract elements affect costs and savings
  - How to tailor T.O. to match agency needs
- **Structure for decision making**
- **Documentation of agreements**

- **See RRPM in Case Study Book, p. 93**

# Financial Risks

- **Construction costs**
- **M&V confidence**
- **Energy-related (one-time) savings**
- **Delays**
- **Major changes in facility**
- **Interest rates (covered elsewhere)**

# Construction Costs

- ESPC is a design-build, fixed-price contract, so agency has little risk
- Design standards and review processes in the contract ensure that agency gets what is specified in the award
- Agency-initiated changes in scope, design standard, or schedule have to be negotiated as modifications to the contract

# M&V Confidence

- **The agency pays the contractor for M&V services**
- **Need to balance savings certainty and M&V cost**
- **Law of diminishing returns applies**
- **Average annual M&V cost is 3% of annual savings**
- **Who takes most risk with Option A? The agency.**
  - But in many cases this is actually a good business choice for the government

# One-Time Energy-Related Savings (Implementation-Period Savings/Payments)

- **Issues**
  - Including one-time cost savings before the money has been appropriated
    - But be careful: an FY appropriation can disappear if project isn't awarded within that FY
  - One-time savings must be based on actual spending reductions
- **What to do**
  - Clarify sources of non-energy cost savings and how they will be verified

# Delays

- **Whoever causes the delay pays for the delay**
- **ESCO at risk for extra costs if schedule is delayed**
- **Agency must adhere to review and approval schedules**

# Major Changes in Facility

- **ESCO can't be held responsible**
- **Understand that buildings' usage will likely change over two decades**
  - Be prepared to modify contract to reflect these changes
  - If a building is demolished, termination for convenience is sensible solution
    - If only one of several buildings in T.O., *partial* termination may make most sense

# Operational Risks

- **Operating Hours**
- **Loads**
- **Weather**
- **User Participation**

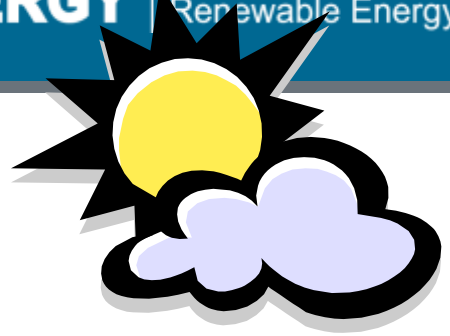
# Loads and Operating Hours — Agency Generally Takes These Risks

- **Agreeing to operational factors for calculating savings — based on engineering calculations and baseline measurements — is customary**
  - Guarantee is met if related requirements are met (performance standards, O&M)
- **TOs sometimes specify how baselines may be adjusted, when key changes are anticipated**
  - Example: Loads raised by expected occupancy increase

# Example: Operating Hours

- Agency and ESCO value lighting savings based on agreed-to operating hours, measured once in baseline
  - Along with before/after measured sample of fixture wattages
- To minimize risk: Base agreed-to values on measurements, where possible — not assumptions, unverified schedules, or loose observation

# Weather

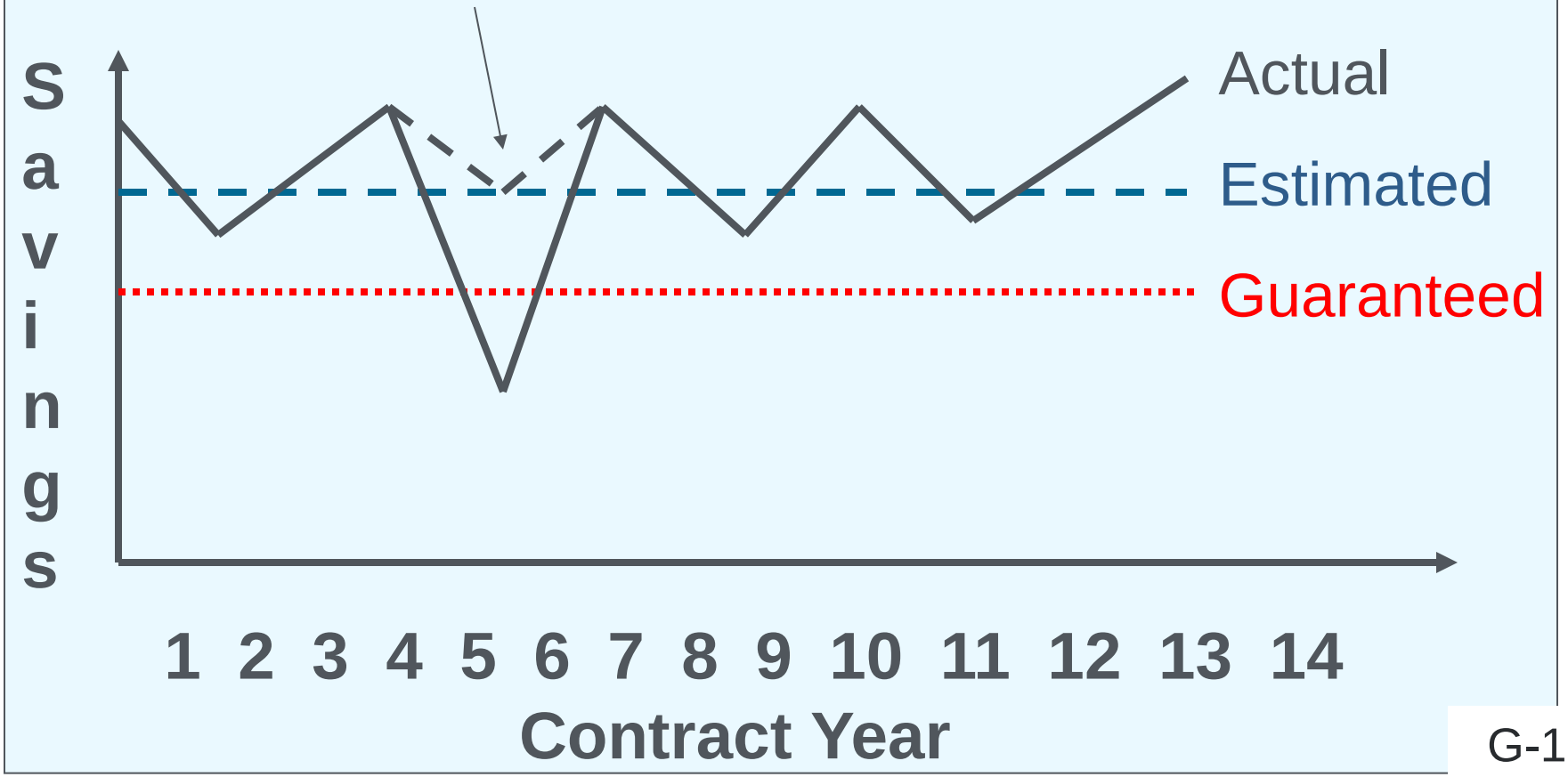


- **No one controls the weather**
- **Weather dramatically affects loads**
- **Weather is typically stipulated based on Typical Meteorological Year (TMY) data**
  - This “normalized” weather is based on 30-year averages and evens out savings shortfalls in mild weather years with excess savings of harsh ones
  - Keeps ESCO on hook for performance but *off* hook for anomalous weather

# Weather



Savings can be normalized to account for mild or severe weather years.
Example: Mild summer in year 5 adjusted to average using TMY.



# User Participation

- Some measures require users to interact with equipment (or at least not override it) for proper operation
- Many task orders specify set points or other requirements
- If a measure does not work because the users do not use something as intended, is the contractor responsible?

## Performance

– Equipment performance
– Operations
– Maintenance
– Equipment repair & replacement

- **By contract, ESCO responsible for performance**
- **Assurances:**
  – Design and performance standards
  – Post-installation M&V
  – Commissioning
  – Defined consequences for substandard performance

# O&M and Repair and Replacement (R&R) are major factors in performance risk

- **ESCO has ultimate responsibility for O&M — and assuring guaranteed performance of ECMs**
- **But day-to-day conduct of O&M and R&R are negotiable**
- **If ESCO does the work, it assumes all risk (and gets paid for it)**
- **If agency does the work, it assumes expense and possibly some of the performance risk**
  - Non-compliance with O&M and R&R plans and schedules can compromise the guarantee

# Factors to Consider

- Agency may opt to do O&M and R&R
  - Permits more investment
  - Consideration: existing O&M contracts
  - Best for ESCO to do R&R for unfamiliar ECMs (e.g., renewables)
  - If ESCO is responsible for R&R, it will likely assure O&M is done right

# Future Energy Prices — Setting Escalation Rates

- **It's customary for agency to accept energy price risk in ESPC**
  - Future energy prices are normal agency risk anyway
- **There are down sides to both over- and under-estimating future energy prices**
  - Over-estimates lead to payments exceeding savings
  - But *under*-estimates lead to reduced scope and increased interest costs (due to longer project term)
    - Moreover, the reduced scope leaves site exposed to higher total energy rates

# Future Energy Prices — Setting Escalation Rates (cont.)

- **"Conservative" escalation rate is one that's accurate – *NOT* one that's artificially low**
- **Solution: FEMP/NIST Energy Escalation Rate Calculator (EERC)**
  - Calculates avg. escalations given state and term
  - Standard for setting escalation rates for federal ESPC and highly recommended by FEMP
  - Downloadable from "Resources" section of FEMP's Web site

# Lessons Learned on RRPM

- RRPM ensures that important risks are addressed and responsibilities assigned
- Dialog fosters mutual understanding of the deal
- Use the RRPM to guide proposal review — details in M&V plan and other parts should not conflict with RRPM
- Don’t take a responsibility that your organization can’t handle well!

# Review



Q1: What are the two key elements of the ESPC guarantee?

A: A specified level of cost savings (one total dollar amount) and specified equipment performance (and standards of performance)

Q2: Who generally takes the risks of loads and operating hours changing?

A: Agency

Q3: Name two topics in the financial risk category.

A: Construction costs, M&V confidence, energy-related (one-time) savings, delays, major changes in facility, interest rates.

# Review



Q4: Who has ultimate responsibility for ensuring that O&M is done properly?

A: The ESCO

Q5: What is the down side of underestimating energy price escalation rates?

A: Leaving money on the table: Underestimates lead to smaller project scope than could be accomplished and increased interest costs (due to longer project term)

Q6: How is weather risk usually handled?

A: Normalized: Weather is typically stipulated based on Typical Meteorological Year (TMY) data. “Normalized” weather is based on 30-year averages and evens out savings shortfalls in mild weather years with excess savings of harsh ones.



## Next Module: H

## Phase 3 – Project Development ▶